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A Case of Pulmonary Arterial Reflux. By Sir Dyce Duckworth, M.D. *Read October* 14, 1887.

CASES in which the pulmonary artery is diseased so as to allow of reflux through its sigmoid valves are so rarely met with that I propose to record the particulars of one which has come under my observation.

J. R. E., æt. 49, a bank porter, was admitted into John Ward, St. Bartholomew's Hospital, under my care on January 22, 1887. Five years before, he was discharged from the police, in which service he had been for twenty-one years, attaining the rank of sergeant. He had become unfit for duty owing to shortness of breath.

He was a dark-haired man, of large frame, but he had never been very strong. He gave a history of two attacks of pleurisy on each side of his chest since 1870, and of cough and increasing shortness of breath for the previous eight or nine years. He was under my care in March, 1884, and remained in John Ward for two months. At that time he suffered from pain between the shoulders, increased on exertion. He had had several attacks of gout, but no illnesses that could fairly be called rheumatic. His father was gouty, and died paralysed at the age of sixty. He had drunk rather too freely both of beer and rum. There was no history of syphilis. The notes taken during his first stay in hospital record that his complexion was dusky, and that he had a teasing cough. The chest was barrel-shaped. The heart's impulse was felt in the sixth space under the left nipple, free from thrill. Percussion-dulness extended from second left intercostal space to the apex-beat. At the apex was heard a natural first sound, and a faint diastolic murmur. A clear second sound was also heard here. Above the apex and over the whole præcordia a diastolic murmur was heard, loudest, it was noted, over the aortic area, and audible to the right as far as the nipple line. The pulse was jerky, smaller in right than left radial, 96 in the minute, with occasional omission of a beat.

The lungs gave signs of impaired resonance at the upper lobes, and some generally dispersed dry bronchitic sounds were audible. There was some mucous expectoration. The

legs were œdematous up to the knees. The urine, sp. gr. 1030, was void of albumen.

During his stay he spat on one occasion two ounces of dark blood mixed with mucus. I headed the board "Morbus cordis, aortic regurgitation, chronic bronchitis, and emphysema," adding, with a query, "aortic aneurism." Several symptoms led to this latter suspicion, especially the signs of obstruction in the chest, and the deep-seated pain. Later on, epigastric pulsation was noted. A fair amount of improvement ensued, and the man went out.

On November 21, 1885, he was readmitted, and came under the care of my colleague, Dr. Gee, in Luke Ward. He had caught a bad cold a month previously.

At this time he had orthopnœa, and his chest expanded with difficulty. He had no thoracic pain. The heart's apex was impalpable, and no cardiac dulness was detectible. A diastolic murmur was audible all over the præcordia, loudest over lower end of sternum. The first sound was natural. The pulse was very irregular, 50 in the minute, of fair volume, and not jerky. The urine was pale, acid, sp. gr. 1015, and contained a trace of albumen. His board was headed "Aortic regurgitation, winter cough, gout." He remained two weeks in hospital, and was discharged relieved.

On his third admission to my ward in January, 1887, he was very dropsical and bronchitic. His complexion was markedly dusky. The jugular veins were turgid, and he passed very little urine, acid, sp. gr. 1025, containing one sixth of albumen and no glucose. There was orthopnœa and much flatulent distension. The bowels were confined. The apex-beat of the heart was felt in the fifth space, half an inch inside the left nipple line. Very limited dulness on percussion. There was epigastric pulsation. Systolic apex murmur heard in axilla and behind. A diastolic murmur was audible at apex and base, loudest down the sternum. The second sound was particularly noticed to be defective in the pulmonary arterial area. The pulse was 78 in the minute, irregular in force and rhythm, small, and of increased tension. No collapsing or aortic reflux quality observed. Much pulmonary emphysema, abundant râles all over the chest; cough, with abundant muco-purulent expectoration. The liver dulness began at seventh right rib, but the viscus was not felt below the cartilages. Spleen not felt. Œdema of the loins present. The temperature remained throughout rather below normal.

But little improvement followed on treatment adapted to his general condition. Digitalis was hardly of any avail.

On January 25 the following note was made as to the heart-signs: A diastolic thrill at the apex. First sound heard at beginning but passing at once into a murmur which is audible in axilla and behind. Systolic murmur heard over ensiform cartilage. The pulmonary second sound is not heard. Diastolic murmur as before. Some pulsation of jugulars. An attack of gout occurred at this time in left foot and great toe-joint. Early in February signs of increasing cardiac dilatation appeared with œdema of the lungs. Very little urine was passed. Cough was troublesome with copious greenish purulent expectoration, void of blood. The pulse was a little over 100, and respirations 30 in the minute.

On February 16 the cardiac apex was found a little further out in fifth space. The diastolic murmur was less loud. Pulmonary second sound not heard. Jugulars fuller. Anasarca increasing. There supervened increasing cardiac debility and dropsy, with mental clouding, and death occurred on March 6.

At the necropsy the lungs were found emphysematous and œdematous. Pericardium natural. Heart very large with much dilatation, especially of right ventricle. The mitral and tricuspid orifices were dilated, the aortic valves natural. The pulmonary valves were two in number, one large one with much thickened edges, and one smaller with similarly thickened edges. Between the two was a vacant space showing some slight roughening at the site where a third valve should lie. Below this was a thin-walled aneurismal pouch, capacious enough to hold a large hazel nut. Septum of ventricles complete. The liver was "nutmeg." Spleen a little enlarged, void of infarcts. Kidneys hard, but otherwise apparently natural.

The heart is preserved in the hospital museum; the condition of the valves is shown in Plate III.

It is possible that there was congenital disease of the pulmonary sigmoid valves in this case. The appearances rather indicated the previous existence of an incomplete valve at the vacant part of the pulmonary ring. There had probably been regurgitation throughout life, without any symptoms manifesting themselves till the cardiac wall failed in its nutrition.

Judging by the light of the physical signs it seems hardly creditable that the diagnosis was not made with certainty.

Many discussions took place at the bedside about the case. The absence of a characteristic collapsing (aortic) pulse was again and again noted as evidence against the existence of aortic regurgitation, and several sphygmographic tracings were also confirmatory against this.

I do not hesitate now to say that the diagnosis of pulmonary arterial reflux ought to have been made. I have, however, a vivid recollection of making that diagnosis on one occasion, and of finding the case turn out post mortem to be one of aortic reflux with healthy pulmonary valves. I suppose there will often be hesitation in pronouncing with absolute certainty in these cases. They are extremely rare.* Aortic regurgitation is sometimes indicated by a murmur heard loudest in the area of the pulmonary artery. The condition of the pulse when the disease is fully developed will probably best assist in determining which set of sigmoid valves are involved.

* A case is described by Dr. Whitley in a woman, æt. 44, in the *Guy's Hosp. Reports* for 1857, p. 252, where disease of the pulmonary artery was suspected by Dr. Hermann Weber. Double bruits were heard over the region of the artery, and the pulmonic valves were found much diseased post mortem. The artery was greatly dilated above the valves. *Vide* Stokes on *Diseases of the Heart and Aorta,* Dublin, 1854, p. 163, for cases and for valuable commentaries suggesting great caution in establishing the diagnosis.

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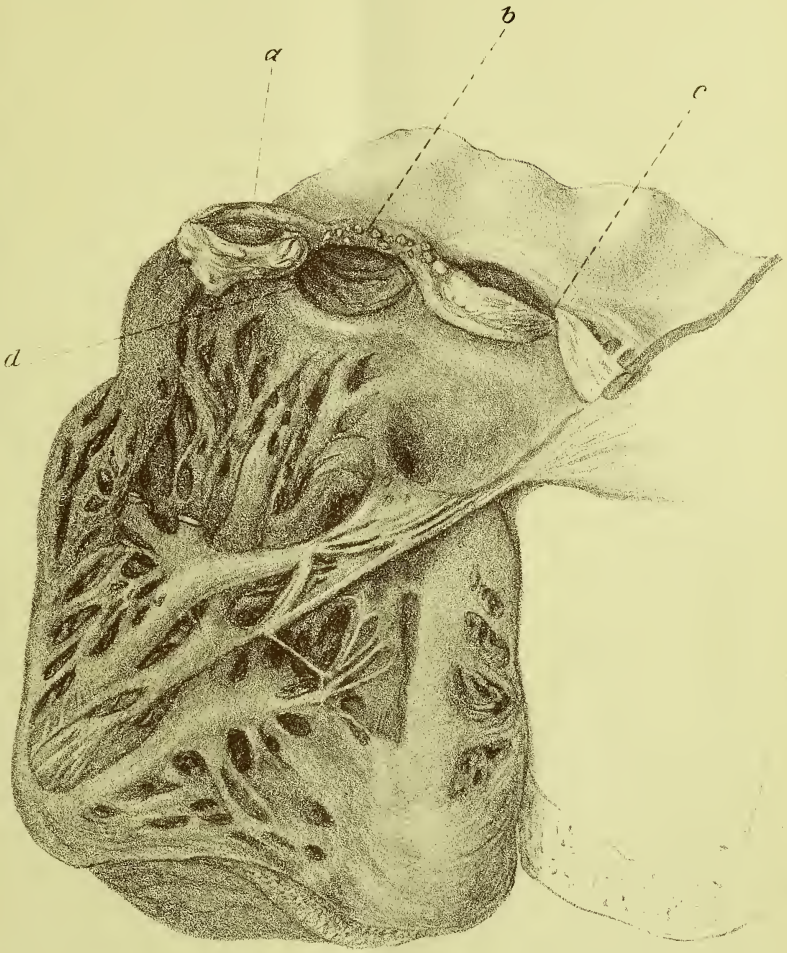
DESCRIPTION OF PLATE III.

Sir Dyce Duckworth's Case of Diseased Pulmonary Arterial Valves.

Two valves only found: A. Smaller; B. Larger; both thickened greatly at the edges. At C remains of third valve with beaded roughening at the attachment. D. Aneurismal pouch.



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